

Radiation exposure

US academy study attacked

Washington

THE National Academy of Sciences has stumbled into an uncomfortable controversy about the health of American soldiers exposed to radiation when they were stationed near Hiroshima and Nagasaki after the cities were destroyed by atomic bombs in 1945. Veterans have for years been locked in dispute with the Department of Defense about the long-term health effects of their service in the area.

Last July, in a study requested by the Pentagon's Defense Nuclear Agency, the academy's research arm, the National Research Council (NRC), published a report concluding that there was no evidence to support claims that the veterans had suffered from an abnormally high incidence of the bone cancer called multiple myeloma. The fact that the report was immediately criticized as perfunctory by the National Association of Atomic Veterans (NAAV) caused little surprise.

But now, Congress's Office of Technology Assessment (OTA) has joined the fray. In a rare instance of Congress demanding a review of an NRC study, OTA says the report did not have enough evidence for its conclusions.

The academy's involvement goes back several years. In 1981, the Defense Nuclear Agency asked whether a large-scale epidemiological study of multiple myeloma was warranted. An NRC panel under Harvard's Brian MacMahon concluded that the low level of radiation to which US troops were exposed — about a tenth of a rad — could not have been responsible for the incidence of cancer. But the MacMahon panel also said that an epidemiological study might be necessary if estimates of the level of radiation encountered by American troops were revised upward or if there appeared to be *prima facie* evidence that veterans were suffering in disproportionate numbers from the disease.

In the wake of the MacMahon report, the Pentagon asked NRC to find out what it could about the incidence of multiple myeloma. A panel set up to review all known cases of myeloma among the veterans identified only nine — at the bottom of a range from 9 to 29 expected statistically in the normal population. It concluded in July (see *Nature* 304, 200; 1983) that there was therefore no evidence to support claims of an abnormally high incidence among veterans.

OTA claims the NRC study has two basic flaws. The methods used to identify only nine cases of myeloma among the veterans were likely to result in an underestimate of the number who had actually contracted the disease. At the same time, NRC probably overestimated the number of cases that could have been expected if the rate of incidence was the same for veterans

as for the general population.

Veterans who had contracted multiple myeloma were tracked down through a nuclear veterans' "hot line" established by the Pentagon and through a newsletter and magazine article organized by NAAV. The hot line had received calls from nearly 50,000 people by the time of NRC's study, of whom 678 reported service at Hiroshima and Nagasaki, and seven of those reported having multiple myeloma. NAAV found 21 names of people who had served in the two cities and had the disease.

NRC whittled down the 28 possible cases to nine. Eleven were eliminated because they appeared not to have served in Nagasaki or Hiroshima and six because they, their families or doctor failed to respond to follow-up enquiries. In another two cases, review of the clinical evidence found that they had not, in fact, suffered from the disease.

This procedure, claims OTA, was most likely to produce an underestimate of the number of cases. For one thing, the Pentagon hot line had produced only 4 per cent of the estimated 20,000 veterans who had served in Hiroshima and Nagasaki. For another, nearly half of those who contract multiple myeloma die within the first year, and at least some bereaved relatives may have failed to respond to the hot line, particularly as the advertising did not refer to multiple myeloma. Moreover of the 11 cases eliminated because they appeared not to have been at Hiroshima or Nagasaki, only seven were definitely known to have been elsewhere. And the loss of six cases because of failure to respond to a follow-up letter and telephone call could have had a dramatic impact on the overall result.

Finally, says OTA, the report compared the number of cases expected over a 35-year period with the nine cases it had tracked down — but all nine had been reported within a five-year period. OTA claims the comparison was inappropriate; its own calculation estimated the number of expected cases to be much smaller. Taken overall, OTA concludes, NRC's approach was unlikely to have detected a disproportionate incidence of multiple myeloma even if it existed.

NRC has not yet responded to OTA's criticisms, but in the view of at least one congressman the council has some explaining to do. Paul Simon, the Illinois Democrat sponsoring a bill to compensate "atomic veterans", said NRC's report had "tainted" debate about the complex issues involved. The methods and boldness of the report were bad enough, he added; more troubling was that its conclusions agreed so neatly with the views of the Defense Nuclear Agency, which had long denied government responsibility for the health problems of atomic veterans. **Peter David**

Indian science

Research council in trouble

New Delhi

THERE are skeletons in the cupboard of India's Council of Scientific and Industrial Research (CSIR). A scrutiny by a parliamentary committee has drawn attention to several shortcomings in the functioning of India's leading industrial research organization. The committee complains in particular that very few processes developed by the CSIR laboratories have been found useful by industry.

Only recently, Prime Minister Indira Gandhi was forthright in her criticism of the laboratories on the grounds that their research projects incur substantial losses. At a meeting of directors of national laboratories, she said that these are becoming an "ever-increasing burden on the nation" and asked that if there is no hope of the situation improving, "is it not time just to close them down?"

Now the parliamentary Public Accounts Committee (PAC) has revealed what ails these laboratories. Research projects have often been taken on without adequate planning in advance. The lack of machinery, equipment and other necessary facilities has later led to the abandonment of many such projects. In the past two years, about 300 projects have been dropped, reducing the number of schemes in hand to 1,543. A further hundred are to be terminated next year.

The officials concerned in evaluating these projects display a "superficial and perfunctory" attitude, according to PAC, which says that while unproductive and unfeasible projects should normally be abandoned after one year, some of them were allowed to continue for as long as five years. A glaring example is that of a household pump research project which had to be discarded after two years of work when it was found that the same project had been undertaken by another laboratory of CSIR three years earlier.

PAC has remarked that either the processes developed by CSIR were not selected with the needs of Indian industry in mind or CSIR has been unable to inspire the confidence of potential users in the usefulness of its processes. The council referred 295 of its technical development projects, less than half of those on its books, to the National Research Development Corporation (NRDC) for industrial exploitation, of which only 15 per cent had been taken up by industry by June 1981 — and some of these were withdrawn by CSIR.

Even public sector undertakings are not making full use of the council's research output. CSIR has been complaining of an "unsympathetic attitude towards development and utilization of indigenous know-how", saying that many of its

schemes are exposed to unfair competition "by the import of technology from abroad". It has been demanding a role in the selection of technology imports. It rankles that last year, CSIR technology for colour television was not exploited but that, instead, the government allowed the import of colour television sets.

The director general of CSIR agrees with the criticism that the council's laboratories concentrate on projects which serve the elite sections of society and pay little attention to technologies that could benefit people in economically weaker sections of the community. It has accordingly compiled a list of technologies to be developed for poor people.

Younger scientists have found support

from PAC for their complaint that their views are ignored in planning the research work of laboratories. The committee says that funds allotted to their work are often arbitrarily transferred to other projects sponsored by more senior scientists, while younger people tend not to be included in the high-level committees of different laboratories.

CSIR is concerned that it can no longer attract scientists of high calibre for senior posts, partly because its laboratories are poorly equipped. One of its difficulties is the rapid inflation in the prices of chemical apparatus, equipment, books and journals, so that even a 10 per cent increase in its budget is not enough to catch up.

Sunil Saraf

Animal rights

Massachusetts bans strays

Boston

THE giving or selling of dogs and cats from city pounds and animal shelters to laboratories has been outlawed by the Massachusetts legislature. Responding to overwhelming public support for the measure, the bill has now been signed by Governor Michael S. Dukakis.

Animal rights advocates are claiming a major victory, as Massachusetts becomes the eighth state to prohibit pound seizure — the right of licensed laboratories to purchase unclaimed animals after 10 days. The law will end pound seizure from next October and the purchase of dogs and cats imported from out-of-state pounds from two years after that. Massachusetts is the first state to enact this provision.

Researchers who depend on so-called "random source" dogs and cats will now have to buy more costly "purpose-bred" animals from commercial breeders, or switch to other experimental subjects such as sheep, pigs, calves and goats. Ralph Charwood, assistant director of the Harvard Animal Resource Center, says that the law will dramatically increase costs for heart, kidney and toxicology research that now depends on pound animals. Boston area medical schools are considering solving the problem of supply by establishing a jointly operated animal breeding facility, but even this approach would be more costly than buying cats and dogs from pounds.

Walter Kilroy, vice-president of the Massachusetts Society for the Prevention of Cruelty to Animals (MSPCA), claims that the law will improve the quality of research. "Random source animals are not good research models", he said. "Their genetic background and physical condition are much more variable than bred animals." Opponents of pound seizure believe that domesticated dogs from pounds suffer more stress than those used to kennel conditions and maintenance. "Laboratories taking dogs from pounds accept only those animals with person-

alities that allow them to be handled and restrained", said Kilroy. These are pets, accustomed to "human companionship and affection, and liberty".

Research institutions in Massachusetts — Harvard University and the University of Massachusetts in particular — have for several years been fighting highly organized efforts to repeal the pound laws; state legislators receive more mail on this issue than any other. ProPets, an alliance between the New England Anti-Vivisectionist Society (NEAVS) and MSPCA, collected more than twice the required number of signatures on a petition to put on this year's ballot a referendum far more



restrictive than the law now to be enacted. Unwilling to face the huge costs of fighting a state-wide referendum, the research institutions agreed to the new legislation in a compromise with ProPets hammered out by State Representative Ray Jordan.

Legislative efforts to prohibit pound seizure appear to be gaining momentum in other states. Aaron Madlock, director of the New England Anti-Vivisectionist Society, says his group will now campaign for similar legislation in Vermont, and points out that animal rights groups in California are engaged in a major battle to ban both pound seizure and importation from other states. Although universities, medical schools and pharmaceutical companies are now attempting to persuade the public of the value of animal research, they have plenty of catching up to do.

Christopher Earl

Soviet oceanology

Institute director in deep water

DR Andrei Sergeevich Monin, director of the Institute of Oceanology of the Soviet Academy of Sciences, has recently come under sharp attack in the Soviet media and from Communist Party activists within the academy. Charges against Dr Monin range from "the embezzlement of socialist property" (having his dacha repaired by institute employees and out of institute funds) to despatching research ships "round the world and back again" without a research programme for the whole journey, and from failing to ensure a "proper moral and political climate" in the institute's oceanological equipment design bureau (which is said to be run by a "close relative" of Dr Monin) to applying for the right to search for sunken treasure. Moreover, it is claimed, he has consistently ignored the criticisms of local and academy party officials, and has attempted to dismiss from the institute anyone who complained too openly of his policy.

As far as the corruption charges are concerned, the institute appears to have been made an example in Mr Andropov's much-publicized campaign for "work discipline". Unauthorized disbursements from the bonus fund and discreet "rectification" of over-demanding plans have become, alas, all too common a feature of Soviet management — including the management of scientific institutions. According to *Sovetskaya Rossiya*, several employees of the Institute of Oceanology's Leningrad branch have already been brought to trial on charges of "fraud and currency machinations". Nevertheless, it is alleged, the deputy director, L.A. Tzymbal, who was discovered to have sanctioned and received illegal salary increments, is still working at the institute under Dr Monin's patronage.

Dr Monin has, apparently, so far managed to quash all complaints against him, including those made to the academy. Letters of complaint get bogged down in the bureaucratic process or else receive smooth and non-committal answers. Several leading oceanologists have allegedly left the institute in disgust at the director's seeming inviolability. Meanwhile, Dr Monin himself has a standard answer to every criticism: it is all due, he says, to the "growing pains" of the relatively young science of oceanology.

Vera Rich

Correction

The accidental sea discharge at Sellafield reported in *Nature* (306, 721; 1983) was made through the normal sea pipeline, and not as stated. The 2-inch pipe was used in an attempt to return waste from the sea tank to the plant. □